

***Pison nogorombu*, a new species from Papua New Guinea
(Hymenoptera: Sphecidae)**

WOJCIECH J. PULAWSKI

California Academy of Sciences, Golden Gate Park, San Francisco, California
94118.

Abstract. — *Pison nogorombu*, a new species from the mountains of New Guinea, has a unique, stepped mandible, intermediate between the entire mandible of most *Pison* and the notched mandible of the Neotropical species previously placed in the subgenus *Entomopison*. Menke (1988) examined the species when he synonymized *Entomopison*, but had no available name for it.

Several new species of *Pison* were found during my collecting trips to Papua New Guinea in 1987 and 1988. One of them requires immediate description since it was already discussed by Menke (1988), and is considered by Antropov and Pulawski (1989). As usual, I follow the morphological terminology of Bohart and Menke (1976), but the upper and lower interocular distances and ocellocular distance are as defined by Menke (1988:9). The mandibular terms (Fig. 1) are mainly based on Michener and Fraser (1978):

acetabulum: anterior mandibular articulation (on the clypeal side of the head);
adductor ridge: starts at the adductor swelling near the mandibular base (on the concave face) and extends toward the mandibular apex; in *Pison*, it becomes visible on the outer surface before the mandibular midlength, extends almost to the apex, and constitutes the posterior (= ventral) margin between the convex and concave faces;
admarginal ridge: this newly coined term designates a ridge that runs parallel to the posterior mandibular margin, overlaps with the condylar ridge, but does not continue to the mandibular base;
condylar ridge: extends distad from the mandibular condyle and constitutes the margin between the convex (external) and the concave (internal) mandibular faces; in *Pison*, it extends to less than mandibular midlength;
condyle: posterior mandibular articulation (on the occipital side of the head);
outer ridge: extends from the acetabulum toward the mandibular apex;
posterior margin: extends from the condyle to the mandibular apex and corresponds to the externoventral margin of Bohart and Menke (1976) and to the lower margin of Michener and Fraser (1978); it actually consists of the condylar ridge (proximally) and the adductor ridge (distally).

The institutions where the specimens are deposited are abbreviated in the text as follows:

AEI: American Entomological Institute, Gainesville, Florida,
BISH: Bernice P. Bishop Museum, Honolulu, Hawaii,

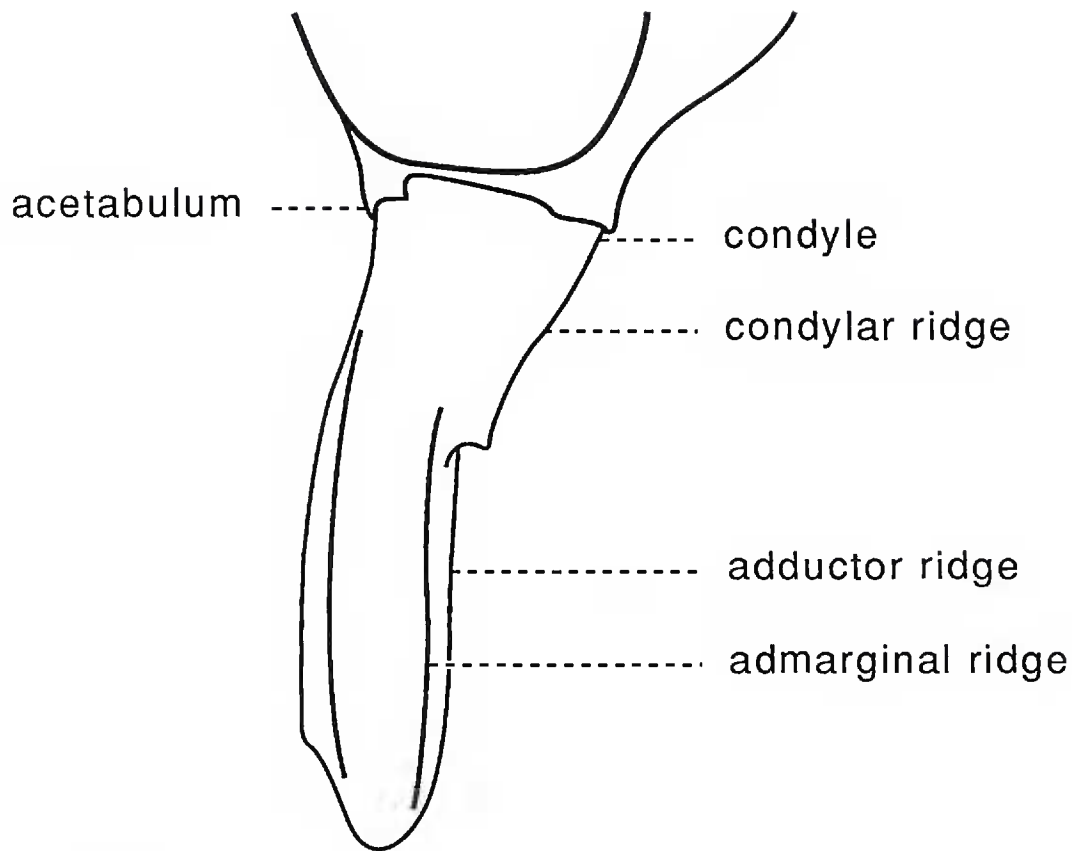


Figure 1. Mandibular terms.

BMNH: British Museum (Natural History), London, England,
 CAS: California Academy of Sciences, San Francisco, California,
 RMNH: Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands,
 UPNG: University of Papua New Guinea, University, Papua New Guinea,
 USNM: United States National Museum (=Smithsonian Institution), Wash-
 ington, D.C.,
 ZMMU: Zoological Museum, Moscow State University, Moscow, USSR.

I sincerely thank Kees van Achterberg and Henry K. Townes for sending material, Gordon M. Nishida for his help during my visit to the Bishop Museum, Arnold S. Menke for reviewing the manuscript, Mary Ann Tenorio for producing the map and illustrations, and Vincent F. Lee for proofreading the text. Kees van Achterberg and Gordon M. Nishida helped me find obscure localities.

***Pison nogorombu*, NEW SPECIES**

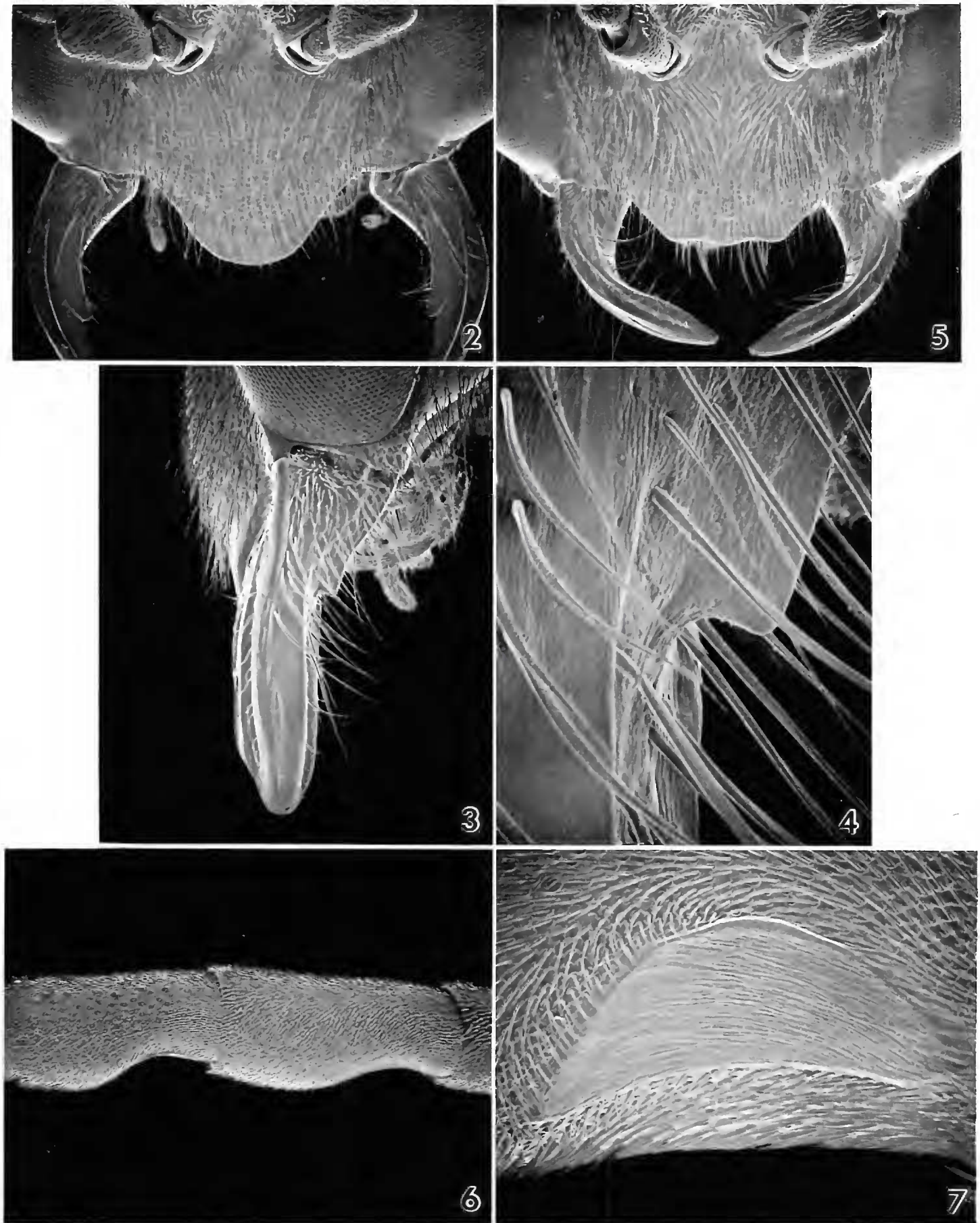
(Figs. 2–13)

Pison sp. from New Guinea: Menke, 1988:4 (photograph of mandible), 6 (discussion).

Pison nogorombu: Antropov and Pulawski, 1989:318 (nomen nudum).

Derivation of name. —Nogorombu is a word in the Gendeka language, spoken in Bundi District of Madang Province, Papua New Guinea. Although native speakers translate it as bee, the word actually refers to all aculeate wasps able to sting. I was assured that this species is a nogorombu, and from personal experience I know that it can sting.

Diagnosis. —*Pison nogorombu* has a unique mandible, with a stepped posterior margin: the condylar ridge is rectangular apically and overlaps the admarginal ridge, and the adductor ridge is not broadened distally (Fig. 3). In most *Pison*,



Figures 2–7. *Pison nogorombu*. 2. Female clypeus. 3. Female mandible. 4. Mandibular notch of female, enlarged, 5. Male clypeus. 6. Male flagellomeres IV and V. 7. Notch of male flagellomere IV, oblique view.

the margin is neither stepped nor notched, the condylar ridge overlaps the ad-marginal ridge and is not angulate distally, and the adductor ridge is not expanded. The margin has a minute, rudimentary step in some species (e.g., *insigne* Sickmann), and is markedly notched in the *convexifrons* and the *pilosum* species groups (Menke, 1988), both Neotropical. Here, the apex of the condylar ridge is prominently, acutely angulate and the adductor ridge is roundly expanded adjacent to

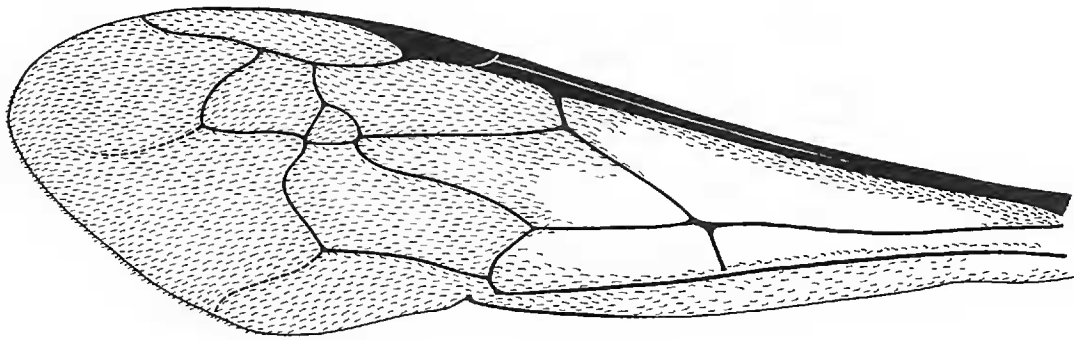


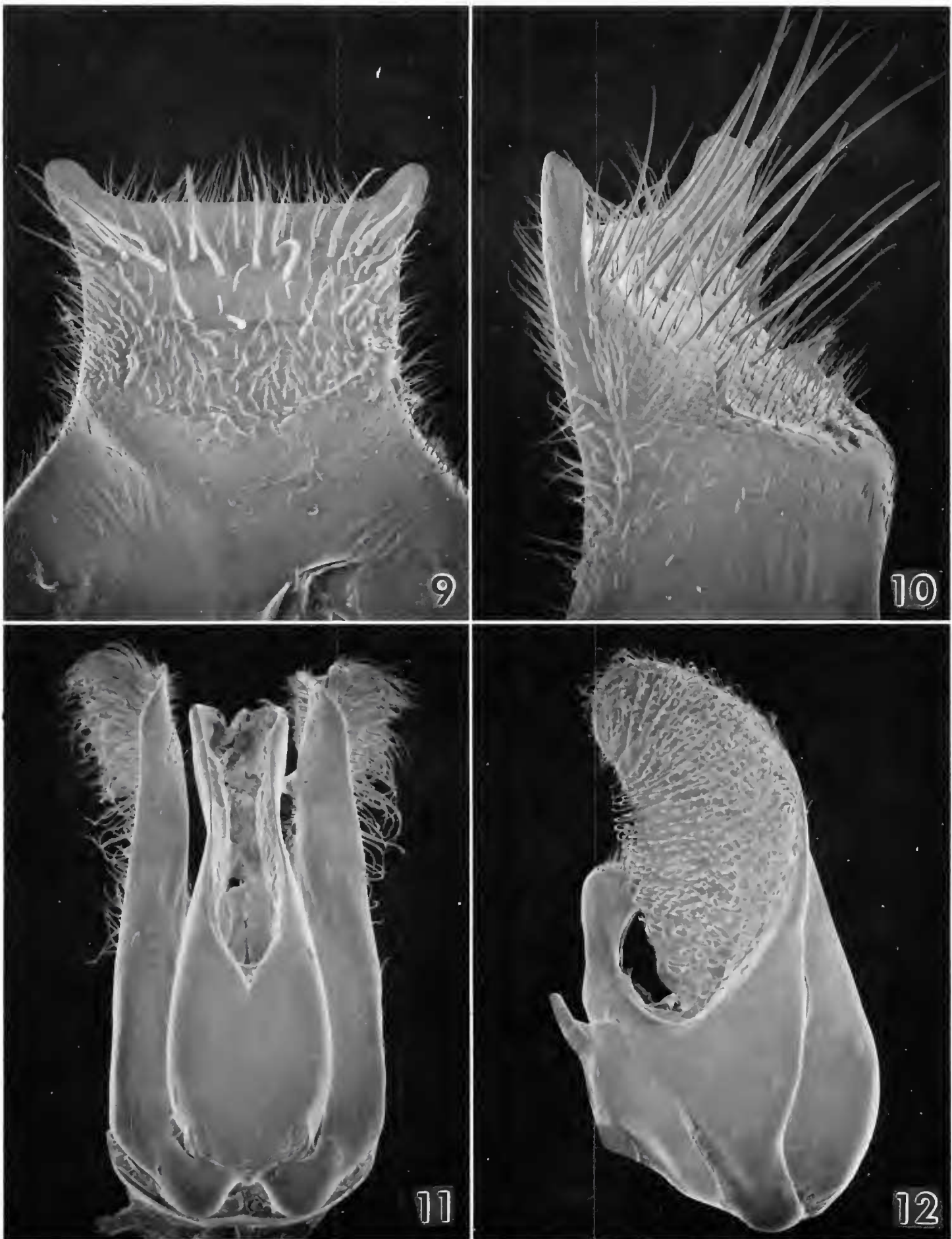
Figure 8. *Pison nogorombu*: forewing.

notch; the latter extends nearly to the outer ridge and separates the admarginal and the condylar ridges.

In addition to the mandibular character, *nogorombu* differs from other Papuan species in having the forewing partly aetose in the basal half (Fig. 8); also, the antenna is unusually long (e.g., length of flagellomere I $3.1\text{--}3.2\times$ apical width in female and $2.6\text{--}3.0$ in male) and male flagellomeres IV and V are emarginate basoventrally (Fig. 6). Subsidiary diagnostic features are: frons finely, sparsely punctate, metapleural flange weakly expanded, setae long (many setae on head, thorax, and gastral segment I equal to upper interocular distance), and gaster moderately elongate.

A male from Irian Jaya: Wisselmeren [=Wissel Danau-danau, or Wissel Lakes], $3^{\circ}55'S$, $136^{\circ}15'E$ near Enarotali, 1850 m (BISH), resembles *nogorombu* in all characters but the following: clypeal lobe pointed, frontal vestiture with golden tinge, and the emargination of flagellomeres IV and V smooth, shiny. In *nogorombu*, the clypeal lobe is truncate (Fig. 5), the frontal vestiture is silvery, and the emarginations of flagellomere IV and V are longitudinally microridged (Fig. 7). The specimen from Wisselmeren, which can be either a geographic form of *nogorombu* or a distinct species, is excluded from the paratypic series.

Description.—Mandible: condylar ridge rectangular distally, adductor ridge not broadened distally (posterior mandibular margin stepped); admarginal ridge narrowly overlapping condylar ridge; inner margin with cleft and small tooth at about midlength. Eye aetose. Frons and scutum evenly microsculptured (scutum weakly so) and punctate, punctures averaging several diameters apart except almost confluent along scutal hindmargin (scutal punctures well defined, frontal punctures well defined to inconspicuous). Occipital carina broadly interrupted ventrally. Pronotal collar weakly, roundly expanded laterally. Tegula impunctate except punctate anteriorly and along inner margin. Episternal sulcus complete, extending to mesopleural foremargin. Metapleural flange weakly expanded. Propodeum punctate, not carinate between dorsum and side; dorsum sulcate mesally. Forewing partly aetose basally: setae fully absent on medial cell except along foremargin, on submedial cell except along hindmargin, on discoidal cell basally, and on subdiscoidal cell anterobasally; three submarginal cells present (two cells in left wing of a male); media diverging from $M+Cu$ distad of crossvein $cu-a$; costal and subcostal veins completely fused in most specimens but separated by narrow gap in some; height of submarginal cell II equal to petiole or shorter; proximal recurrent vein interstitial or received by submarginal cell I, distal recurrent vein interstitial or received by submarginal cell II (at 0.1 of cell's length). Hindcoxal dorsum: outer carina present in posterior half, inner carina angulate anteriorly.



Figures 9–12. *Pison nogorombu*, male. 9. Sternum VIII, ventral view. 10. Sternum VIII, oblique view. 11. Genitalia dorsally. 12. Genitalia laterally.

Mid- and hindtibiae with short spines on outer side. Tarsomeres II-IV with plantulae. Gaster moderately elongate: length of tergum I (in dorsal view) about $1.7 \times$ apical width; distance between gastral base and spiracle about $0.7 \times$ distance between spiracles. Gastral punctures fine, several diameters apart; segments without apical fasciae.

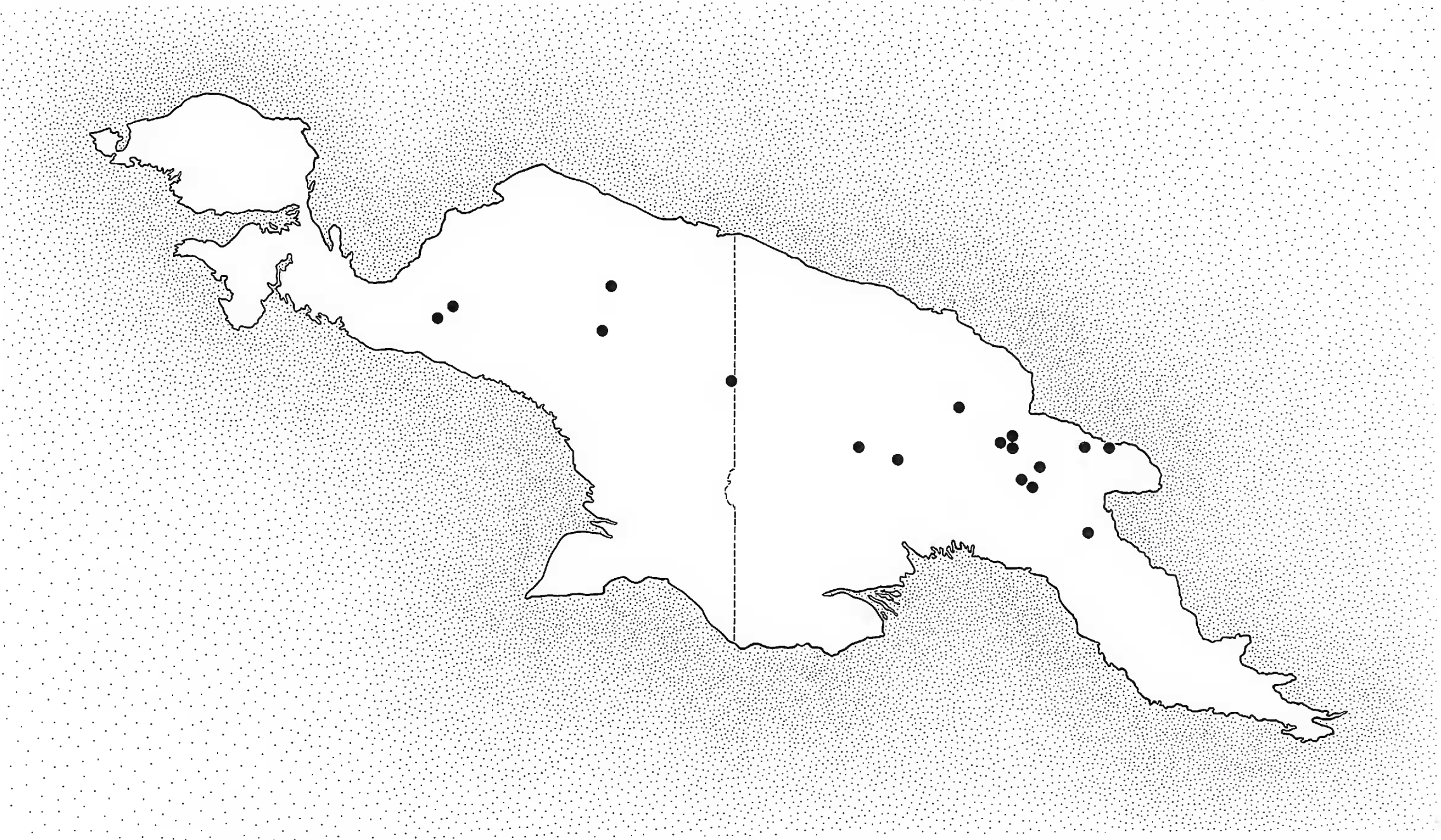


Figure 13. Geographic distribution of *Pison nogorombu*.

Setae erect on head, thorax, gastral segment I, base of II, and femoral venters (many setae equal to upper interocular distance).

Body black, wings markedly infumate in apical half.

♀.—Free margin of labrum not emarginate. Clypeal lobe rounded (Fig. 2). Upper interocellar distance $0.5 \times$ lower interocular distance. Ratio between hindocellar diameter, ocellocular distance, and interocellar distance varying from 1:0.5:0.5 to 1:0.4:0.6. Length of flagellomere I $3.1\text{--}3.2 \times$ apical width. Length 10.0–10.5 mm.

♂.—Clypeal lobe truncate, slightly prominent mesally and laterally (Fig. 5). Upper interocellar distance $0.6 \times$ lower interocular distance. Ratio between hindocellar diameter, ocellocular distance, and interocellar distance varying from 1:0.6:0.4 to 1:0.8:0.5. Length of flagellomere I $2.6\text{--}3.0 \times$ apical width, flagellomeres IV and V emarginate basoventrally (Fig. 6); bottom of emarginations longitudinally microridged (Fig. 7). Sterna II–VI largely impunctate; sternum II simple, III with transverse, ill-defined swelling; sternum VII expanded into broad, apical lobe; venter of sternum VIII with arcuate swelling, punctate and setose posteriorly of swelling (Fig. 9). Length 9–10 mm. Genitalia: Fig. 10.

Discussion.—The study of *Pison nogorombu* helps in evaluating the validity of *Entomopison*. This subgenus was established to include the *Pison* with an emarginate mandible and a prominently angulate condylar ridge (Menke, 1968). The mandible of *nogorombu*, with its moderately angulate condylar ridge, is intermediate between that of *Entomopison* and of *Pison*, s.s. and suggests that the presence or absence of the notch is not a reliable subgeneric character.

Geographic distribution (Fig. 13).—Mountains of New Guinea Island.

Material examined (WJP is abbreviation for Wojciech J. Pulawski).—Holotype: ♀, Papua New Guinea: Madang Province: Bundi, 1400 m, 10–12 Mar 1987, WJP (California Academy of Sciences, Entomology Type #16466).

Paratypes: INDONESIA: IRIAN JAYA: Araboebivak (ca. 12 km NE Lake Paniai), 29 Oct 1939, K.N.A.G. [=Koninklijk Nederlands Aardrijkskundig Genootschap] (2 ♀, one with gaster missing, RMNH); Danau (=Lake) Paniai, 3°50'S, 136°15'E, 1 Sep 1939 (gaster missing), 15 Sep 1939 and 11 Nov 1939, collector unknown (3 ♀, RMNH); Sibil Valley in Star Mts., 5°00'S, 141°00'E, 1245 m, 18 Oct–8 Nov 1961, S. and L. Quate (1 ♀, BISH); Baliem River Camp, circa 4°10'S, 139°00'E, 1650 m, 14 Nov 1938, L. J. Toxopeus (1 ♀, RMNH); Mist Camp, circa 3°28'S, 139°06'E, 1800 m, 10 and 11 Jan 1939, L. J. Toxopeus (1 ♀, CAS; 3 ♀, RMNH); Rattan Camp, circa 3°28'S, 139°13'E, 1150 m, Feb 1939, L. J. Toxopeus (1 ♀, RMNH); Top Camp, circa 3°30'S, 139°04'E, 2000 m, 26 Jan 1939, L. J. Toxopeus (1 ♀, RMNH).

PAPUA NEW GUINEA: **Eastern Highlands Province:** Aiyura, 6°19'S, 145°55'E, Feb 1978, J. L. Gressitt (1 ♀, BISH); Daulo Pass, 5°55'S, 145°18'E, 2450 m, 22 Dec 1978–8 Jan 1979, J. Sedlacek (1 ♂, AEI); Moife, 15 km NW Okapa (which is 06°32'S, 145°37'E), 2100 m, 7–14 Oct 1959, T. C. Maa (1 ♀, BISH); Mt. Otto, 5°58'S, 145°29'E, 2000 m, 22 Dec 1978–9 Jan 1979, J. Sedlacek (1 ♀, AEI); 22 km SE Okapa, 2100 m, 28 Aug 1964, J. and M. Sedlacek (2 ♀, 1 ♂, BISH; 1 ♀, CAS). **Madang Province:** Bundi, 1400 m, 10–12 Mar 1987 and 5 May 1988, WJP (2 ♀, CAS); 5 air km NE Mundiai Pass, 5°48'S, 145°09'E, 2500 m, 14 May 1988 (1 ♂, CAS) and 17 May 1988, WJP (1 ♀, CAS); Pandambai (6 air km W Bundi), 5°38'S, 145°11'E, 2330 m, 10–13 May 1988, WJP (5 ♀, BMNH, CAS, UPNG,

USNM, ZMMU; 3 ♂, CAS); same data but 15 and 18 May 1988 (3 ♀, CAS); same data but 19 May 1988 (2 ♂, CAS); Simbai, 5°17'S, 144°26'E, 1 June 1988, WJP (1 ♀, CAS); Teptep, 5°55'S, 146°30'E, 27 Nov 1987, M. S. Wasbauer (1 ♀, CAS). **Morobe Province:** Ulap, 800–1100 m, Sep 1968, N. L. H. Krauss (1 ♀, BISH); Wau, 1200 m, 10 May 1963, J. Sedlacek (1 ♀, BISH); Wau, 1200 m, 26 July 1961 and 26 Aug 1965, J. and M. Sedlacek (2 ♀, BISH); Wau, 10 Nov 1965, P. Shanahan (1 ♀, BISH); Wau, Edie Creek, 2000 m, 14 Aug 1963, P. Shanahan (1 ♀, BISH); Wau, Oct 1969, P. Shanahan (1 ♀, AEI); Wau, Mt. Kaindi, 1500 m, 12 Sep 1972, J. van der Vecht (1 ♀, RMNH); same locality and collector, 2100–2300 m, 18–19 Sep 1972 (1 ♂, RMNH). **Southern Highlands Province:** 8 km W Mendi (which is 6°08'S, 143°39'E), 2150 m, 5–12 Dec 1967, P. Colman (1 ♀, BISH); above Tigobi near Tari, 5°53'S, 142°57'E, 1 June 1966, J. L. Gressitt (1 ♀, BISH).

LITERATURE CITED

- Antropov, A. V., and W. J. Pulawski. 1989. A new species of *Pison* from Baltic amber (Hymenoptera: Sphecidae). *Pan-Pac. Entomol.*, 65:312–318.
- Bohart, R. M., and A. S. Menke. 1976. Sphecid wasps of the world. A generic revision. University of California Press, Berkeley, Los Angeles, London, IX + 695 pp., 1 color pl.
- Menke, A. S. 1968. New genera and species of wasps of the tribe Trypoxylonini from the Neotropical region (Hymenoptera, Sphecidae, Larrinae), Los Angeles County Mus. Contrib. Sci. No. 135: 1–9.
- . 1988. *Pison* in the New World: a revision (Hymenoptera: Sphecidae: Trypoxylini). *Contrib. Amer. Entomol. Inst.* 24(3):iv + 171 pp.
- Michener, Ch. D., and A. Fraser. 1978. A comparative anatomical study of mandibular structures in bees. *Univ. Kansas Sci. Bull.* 51:463–482.